



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

Kern region has the higher latitude, its southern boundary being  $36^{\circ} 16'$  N. while Mt. Pinos is but  $34^{\circ} 57'$  N.

The probability of finding evidences of former glaciation on Mt. Pinos would seem slight from this comparison, but the hearsay evidence concerning snow in late summer and peculiar topography is more encouraging than were similar reports from Snow Mountain. It certainly should be carefully studied, for it is very possible that the precipitation is greater than reported. It should also be noted that Mt. Pinos is on the border line of two of the climatic divisions of the State and that such a border zone may have had a proportionately greater rainfall during the climatic variations of the glacial period. Whoever undertakes to examine this region should remember that the San Andreas Rift, along the northern part of which motion occurred in the earthquake of 1906, passes only some three miles to the northward of the summit of Mt. Pinos. The irregularities of surface caused by landslides and other movements along a fault zone might be confusing in some relations to an observer predisposed to see morainal topography.

*Résumé:* Briefly summarizing the paper, it may be stated that clear evidence of glaciation exists on Snow Mountain; that a strong probability exists that other areas in the northern Coast Ranges were also glaciated; and that there is at least a possibility that some of the peaks of the southern Coast Ranges including the Mt. Pinos Group may have carried small Alpine or cliff glaciers.

---

## GEOGRAPHIC INFLUENCES IN AMERICAN SLAVERY\*

BY

F. V. EMERSON  
University of Missouri

The Coastal Plain in Alabama and Mississippi, as in the other regions, is belted and largely covered with a veneer of Lafayette and Columbia sediments. The chief distinction between the Coastal Plain in the areas before considered and in the Western Cotton Belt is the occurrence of extensive limestone belts in the latter. (Fig. 18.) While the Lafayette and Columbia formations cover much of the Gulf Coastal Plain, they are absent or meagerly developed on the

---

\* Concluded from *Bulletin* January and February, 1911.

limestone belts. The soils in these limestone belts are, therefore, largely residual, calcareous, and usually have a high humus content which gives the soil its black color. The soils of these belts have considerable clay and require somewhat careful preparation, but they are durable and extremely fertile.

There are two prominent limestone belts in the Coastal Plain of Alabama and Mississippi, of which the northern one was by far the more important. Both of these belts are locally known as "prairies," a word that suggests their rolling and relatively level surface. The Upper or Central Prairie has been developed on an impure clayey

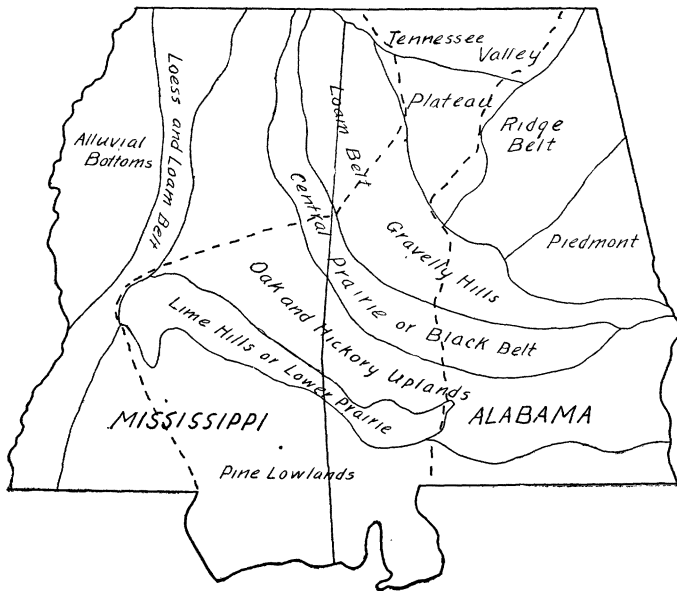


FIG. 18—Map showing the principal divisions of western Cotton Belt, east of the Mississippi, in Alabama and Mississippi. The broken line shows the area from which the Graphs in Fig. 21 are made. (After Smith and Hilgard, 10th census, vol. vi, Part ii.)

limestone of Cretaceous age, known as the "rotten limestone." It is a crescent-like trough bounded on the south by a low cuesta and on the north by sandy hills of the Lafayette formation. It was and is widely known as the "Black Belt."

The Lower Prairie is less important than the Central Prairie, both with respect to their relative areas and to their soils. This belt, known locally as the "Lime Hills," has been developed on a cherty limestone. Its surface is considerably more dissected than that of the Central Prairie. Its soils are, in general, more fertile than those

of the adjacent belts, but are somewhat inferior to those of the Upper Prairie.

The Upper Loam Belt is characterized by a growth of oak, hickory and short-leaf pine. It is practically covered by the Lafayette formation which here is, in general, a loam. The soil is fairly fertile, responsive and easily tilled, but, like most loams, it did not prove durable under the one crop cultivation that prevailed during the slavery period, and, indeed, is still the prevalent method. The Upland Belt between the two limestone belts has much the same soil as the Upper Loam Belt. Generally speaking, the soils in this belt grade from loams in the northern part to sands in the southern portion. This gradation in soils is somewhat well marked by a change from oak and hickory in the north to pine forests in the south. The Central Prairie with adjacent portions of the two boundary belts is often termed the "Central Cotton Belt."

The Pine Lowlands to the southward and the small portion of the Cumberland Plateau were unimportant areas. Their soils were too

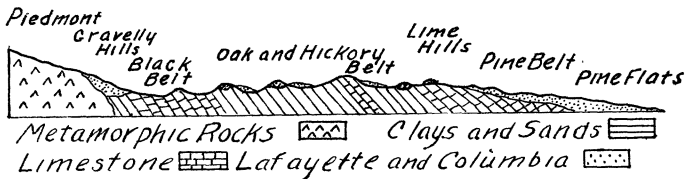


FIG. 19.—Section across the Coastal Plain from the Piedmont to the Gulf in Central Alabama. (After E. A. Smith.)

sandy to offer inducement to the cotton planter. The Yazoo Bottom and Loess Belt will be included in the discussion of the Mississippi Lowland Belt.

The Ridge Belt and the middle Tennessee Valley constituted an important, though small, cotton growing region. The limestone and shale valleys between the ridges together with the alluvium along the narrow flood plains or "bottoms" of the streams gave fertile soils. The Tennessee Valley here is analogous in structure and soils to the Nashville and Louisville Basins. The River has eroded the overlying sandstones of the Plateau and opened its valley in the underlying limestones. (Fig. 20.) A narrow strip of fertile alluvium along the river is flanked on either side by fertile limestone soils. These latter soils grade into the sandy soils of the uplands, whose local name, "The Barrens," suggest their infertility.

Such were the divisions of that part of the Western Cotton Belt

that were included in the Coastal Plain. A profile and section of this belt is shown in Fig. 19.\*

It will, perhaps, be better to take up first the responses of slavery to the Cotton Belt of the Coastal Plain although, chronologically, the institution was established in the lower portion of the Mississippi Lowland at a much earlier date. We have noted that this Western Cotton Belt was settled by an overflow from the older slave states. The development here is especially interesting from an economic standpoint. Here slavery was largely a business proposition and slaves were located with reference to returns on the investment. In the East, slaves were often inherited and slavery had a patriarchal cast.† The institution in the West, therefore, was especially mobile and responsive to geographic environment. Here, too, the plantation system developed as in the East as an effective organization of slave labor analogous to the development of the modern trusts.‡ The holdings of the pioneers§ were restricted or diminished both by the competitive bidding for public lands by the large slave holder and by the tempting prices which the capitalistic slaveholder could offer for the lands of the small farmer.



FIG. 20—Section across the Tennessee Valley in Alabama.

The census of 1820 shows a preliminary invasion of this region in two directions. The slave system of the Eastern Cotton Belt was spreading westward. Also, extending northward from the Mobile area, was a sparse slave population. The Indian lands not yet open to settlement lay in the fertile cotton belt. A decade later slavery was crowding on these lands from the north, south and east with a result that by 1834 the production of cotton in Alabama and Mississippi equaled that of the Carolinas and Georgia. In this same year the crop in Alabama, Mississippi, and Louisiana exceeded by half the crop in the Tobacco South and the Old Cotton South.§ The cheap, productive lands were rapidly draining slaves from the older slave states, especially from the Tobacco South. Title to and possession of the Indian lands soon became possible and in the decade

\* Vol. VI, Soils of Alabama, by E. A. Smith, and Vol. V, Soils of Mississippi, by E. W. Hilgard, 10th census.

† F. J. Turner, *Colonization of the West*, *Amer. Hist. Rev.*, Vol. II, 1905-'06.

‡ U. B. Phillips, *The Origin and Growth of Southern Black Belts*, *Amer. Hist. Rev.*, Vol. II, 1905-'06.

§ F. J. Turner, "Rise of the New West," New York and London, 1906.

from 1830 to 1840 slavery spread into the middle portion of the Coastal Plain, and from 1840 to 1860 it became markedly dense in the Black Belt.

The Lower Prairie is not delimited in mapping the slave population even in 1860. During the slavery period the Federal census did not, as a rule, give the population of the county sub-divisions in the South. The Lower Prairie is a narrow belt and counties in this belt usually include large areas of the adjacent belts whose sparse slave population lowers the average that the maps show. Moreover, the adjustment of slavery to soils was at best very incomplete. The settlement and development of areas was not gradual but intermittent.

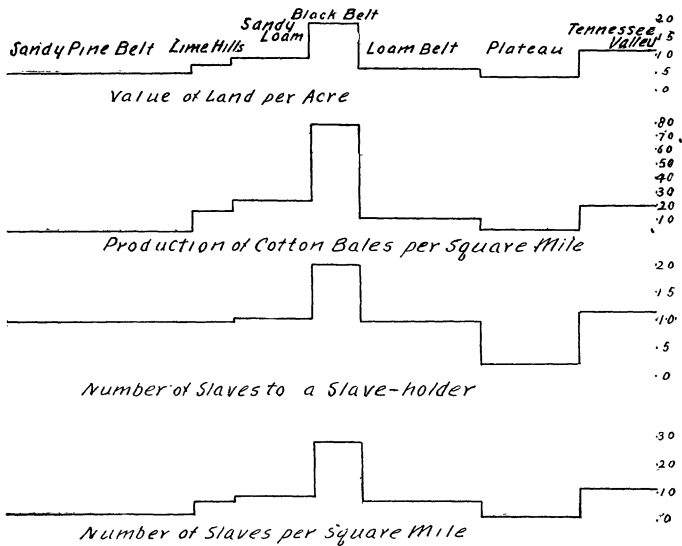


FIG. 21.—Graphs showing Data from the Belt shown in Fig. 18.  
Data from the census of 1860.

The Upper Prairie was not by 1860 so well settled that the slave owners were migrating and the belt was still gaining rather than losing slaves. It is interesting to note that in 1880, twenty years after the slavery period, the Lower Prairie shows the expectable high cotton production that sharply differentiates it from adjacent belts.

The graphs in Fig. 21 well summarize the contrasts in the different areas. Cotton production with its concomitant land values and slave densities, are seen to be at their maxima in the Black Belt, and at their minima in the Plateau. The belts adjacent to the Black Belt show high averages both because of their natural fertility and because counties in the Black Belt often extend into the adjacent

belts. The Pine Lowlands were of minor importance. The plantation system represented by the third graph shows a general parallelism to the other graphs.

The Gulf Coastal Plain is broken midway by the Mississippi Lowland, a lowland with an average width of 50 to 75 miles and an approximate length of 500 miles. (Fig. 22.) On the west this lowland extends for long distances up the main tributary rivers. Into the Coastal Plain the Mississippi has sunk a shallow trench which it is now for the most part, aggrading. The soils in this lowland are alluvial.

When an aggrading stream overflows its flood plain, its velocity suffers its first check on the flood plain near the stream, and here in consequence the heavy materials and a considerable proportion of its lighter material are deposited. The finer silts and clays are laid down farther back from the stream. The topographical results of such a process are typically an elevated belt, the natural levee, along the stream with lower land and swamps farther back from the stream. The soils on the natural levee are sandy or loamy, while the soils on the lowlands are heavy silts and clays. A typical soil section in passing from a stream to the back lands would include consecutively a narrow belt of sand or sandy loam along the stream, paralleled by a belt of sandy loam which grades into the clays and silts of the back lands (Fig. 23). A gradation soil in the better drained clay and silt areas is the famous "buckshot" soil, so called from the fact that after it is plowed it often dries into small grains or "buckshot." Such a combination of chemical fertility and porosity makes this type one of the most fertile soils in the world. Frequently there are low ridges in this belt which mark old stream courses that are now deserted.

During slave times, and, indeed, at present practically only the natural levees are in cultivation. Here on the "front lands" were the plantations, each of which usually had a river frontage for easy shipment. These natural levees, often isolated from each other by miles of swamps, were natural social and oftentimes political units and were frequently referred to as "country," for example, Lafourche country in lower Louisiana. A typical area of alluvial soils is shown in Fig. 23.

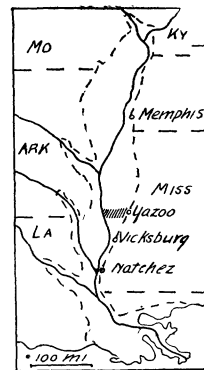


FIG. 22—Sketch Map of the Mississippi Lowlands. The soil area shown in Fig. 23, is cross-lined.

A relatively narrow belt of loess fringes most of the lowland, especially in its eastern margin. This belt is considered in connection with the lowland since it was closely identified therewith in crops and in the development of slavery. For a considerable distance back from the lowland, the loess belt is well dissected owing to the steep gradient of the streams and the loose, unconsolidated condition of the loess and its underlying formations. This dissected belt is in consequence known as the "Cane Hills." The hill tops are often arable but there is a considerable proportion of the area that is too rough for cultivation. Further back from the lowlands, the diminished dissection of the loess belt finds expression in the local name "Flat Hills." The loess belt as a whole is extremely fertile.

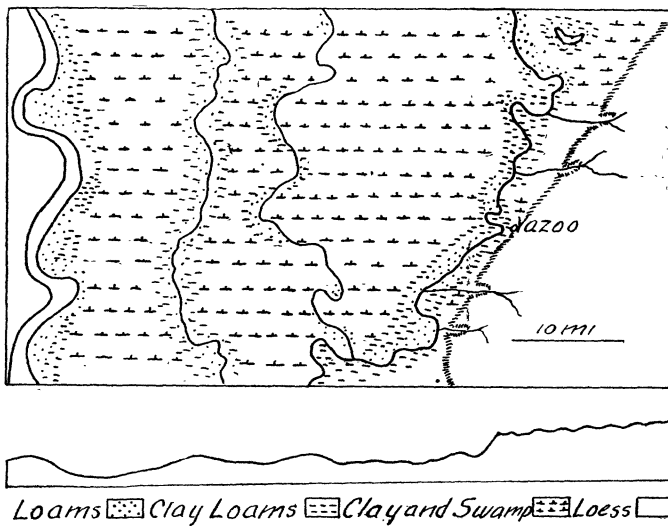


FIG. 23—Soil Map and Profile of a portion of the Mississippi Lowlands and Loess Bluffs in Mississippi. (Soil Data from the maps of the U. S. Soil Survey; Profile from the Map of the Alluvial Valley of the Mississippi Valley, by the Mississippi River Commission, 1887.)

While Louisiana is the most typical lowland state, it should be noted that the lowlands include but a fraction of the state's total area, and this small proportion of lowland to upland is true in greater degree of the other states lying in part in this division. It is the extreme productiveness of the lowland that gives a common impression that Louisiana especially is largely alluvial lowland. Much of the state is covered by the Lafayette and Columbia formations and has the soils characteristic of those formations.

It was in the alluvial lowland of Louisiana that one of the minor



slave crops was developed. Sugar cane is a variety of the grass family that thrives best in a hot, sunny, humid climate where frosts are infrequent. A heavy loam, tenacious of moisture, is a favorable soil.\* Southern Louisiana with its high temperature, copious and evenly distributed rainfall and heavy, fertile soils, offered a productive field for cane cultivation.

Cane was introduced into Louisiana in the middle of the eighteenth century but did not become commercially important until the beginning of the next century, at about the time of the extension of cotton culture. It did not, like rice on the South Atlantic seaboard,

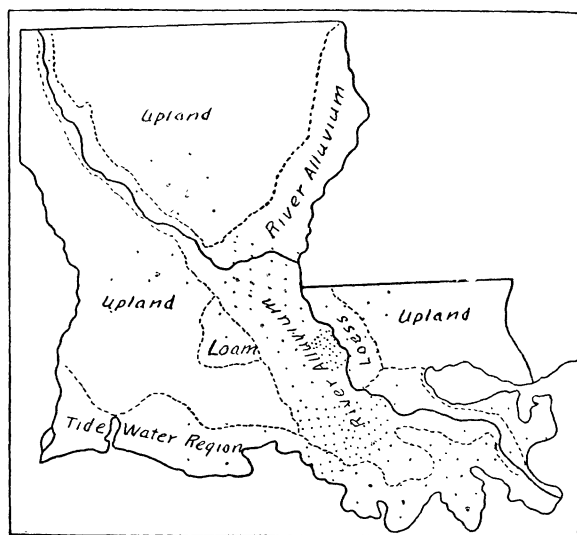


FIG. 24—Map showing the production of sugar in Louisiana, 1860.  
Density of production is indicated by the spacing of dots.

prepare the way for cotton culture. Rather the two crops developed side by side. Cane culture, being intensive and profitable, was nearly as well adapted to slave labor as cotton culture. The cane producing areas in Louisiana were largely in the lowland below the Red River together with an important area on the loess belt. (Fig. 24.) The Louisiana area in 1860 produced 96 per cent. of the entire cane sugar crop of the United States, and 91 per cent. of cane molasses. So far as soils were concerned, cotton would grow well in this area, especially on the lighter soils. However, the heavy autumn rains often destroyed or damaged the crop when it was ready for picking.

Slavery existed in the lower part of the alluvial lowland in early

\* W. C. Stubbs, "Sugar Cane," *Rept. of the Louisiana Experiment Station*, Vol. I.

colonial times, but its principal expansion, like that of the rest of the western Cotton Belt, was deferred until the second decade of the nineteenth century when sugar and cotton culture became prominent. In 1810, when the first Federal census of this region was taken, a considerable slave density was shown on the delta and the loess. In ten years the slave area had spread most upon the loess and the slave density had increased in the lowland above New Orleans.

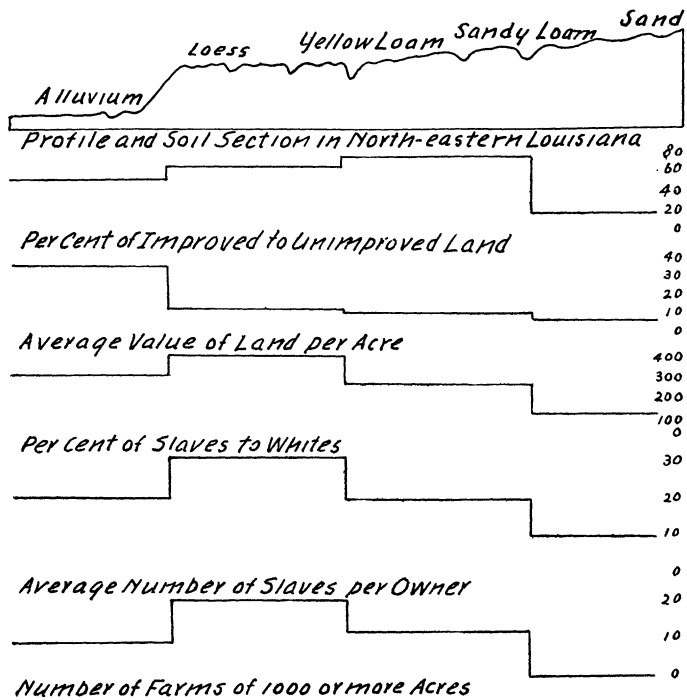


FIG. 25—Soil section and slavery factors on the Mississippi Lowland and adjacent belts, 1860.

By 1840 there was a heavy slave density in the lowlands in Louisiana, and in the Yazoo Bottoms of Mississippi and in the contiguous loess belt. In the next two decades the density increased on the lowland and loess, but it extended much farther north on the loess than on the lowland. Sugar in the southern, and cotton in the northern parts were the main crops, although in the Kentucky region considerable tobacco was grown.

The graphs taken for 1860 in Figure 25 are interesting and, for the most part, typical of this region. The section is taken along the

northern boundary of Louisiana and extends westward along the sandy Pine Lowland, the soil of which is comparatively infertile; the Sandy Loam Belt, known as the Oak and Hickory lands, with a soil of fair fertility; the Yellow Loam Belt which is transitional between the Sandy Loam Belt and the Loess Belt; the fertile Loess Belt, and lastly a county (Point Coupée) in the Lowland.

Less than half the lowlands was under cultivation in this area and it is probable that the percentage here was above that of the lowlands as a whole. Point Coupée County was early settled, and most of the available land and also the lands that admitted easy reclamation, were under cultivation. The higher percentage of improved lands in the loam belt than in the loess belt is to be explained in part by the dissected surface of the western part of the loess belt. A considerable proportion of the loess is "rough land" and not capable of easy cultivation. The Pine Lowlands were too unproductive to pay for clearing their forests.

The high value of the arable loess land brings up the average land value in this belt above that of the adjacent loam belt. The average value of land in the lowland is higher than in the other belts, despite the fact that there is a high percentage of waste area in the lowland. There are no statistics in 1860 to show the relative acreage of the arable lands in the lowland, but the high value of the front lands carried the average value of the whole to a high figure. The relatively low values of land in the loess in contrast with the adjacent belts is not typical of the loess belt as a whole. Further north the loess belt had a higher relative value.

The last three graphs approximately represent the development of the plantation system. These reach their maxima in the Loess Belt. The highest slave percentage, the largest plantations, and the largest individual slave ownership are found in the loess belt. The lower percentages of these factors in the alluvial belt point to smaller plantations, a larger number of owners and perhaps a more intensive cultivation. The Pine Belt in all these factors is insignificant.

Cultivation by slave labor was characteristically extensive rather than intensive, an exploitation rather than a development. The usual procedure was to search for fertile lands, to exhaust them by careless, extensive cultivation, and then to move on to fresh lands. As a geographic response slave cultivation did not bring out the possibility of soil production under careful tillage.

We have noted how the development of the western Cotton Belt drew the slaves from the Tobacco South, and in less degree from the eastern Cotton Belt. By 1860 slavery had secured a strong foot-

hold on the Coastal Plain of Texas. In this state the extension is again resumed of the Black Belt and loam and sandy belts which are separated from homologous areas in Mississippi and Alabama by the Mississippi Lowland. These belts end in the southwestern part of the state (Fig. 26). It was here, had slavery continued a decade or so beyond 1860, that a new expansion would have occurred. The wisdom of the pro-slavery statesmen in securing Texas for slavery is indicated by this state's increasing rank in cotton production. By 1900, 26 per cent. of the cotton grown in the United States was produced in Texas, and much of the Texas crop was grown in the Black

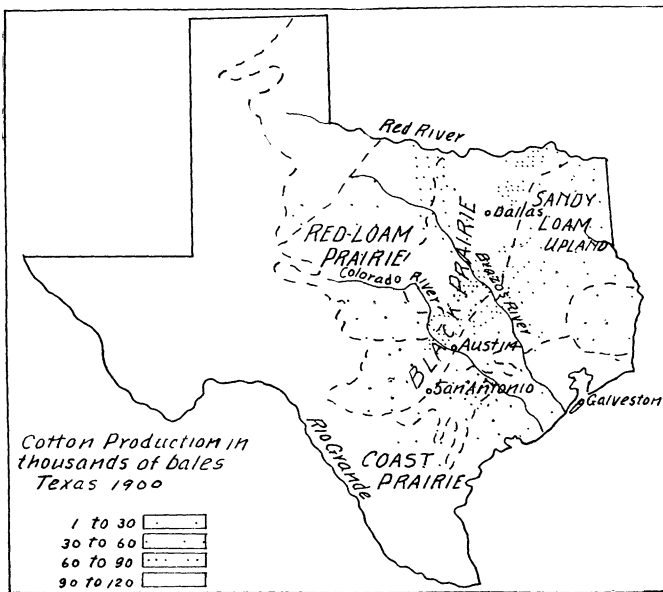
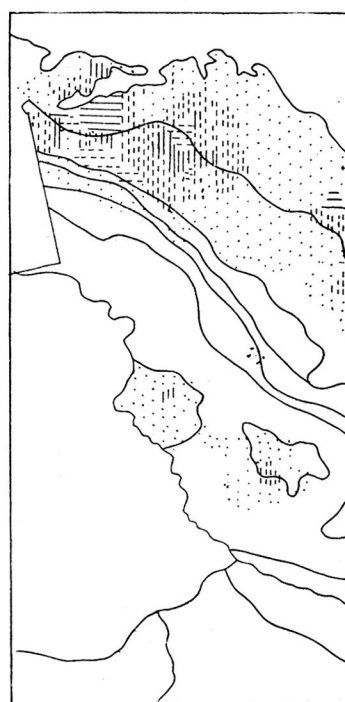
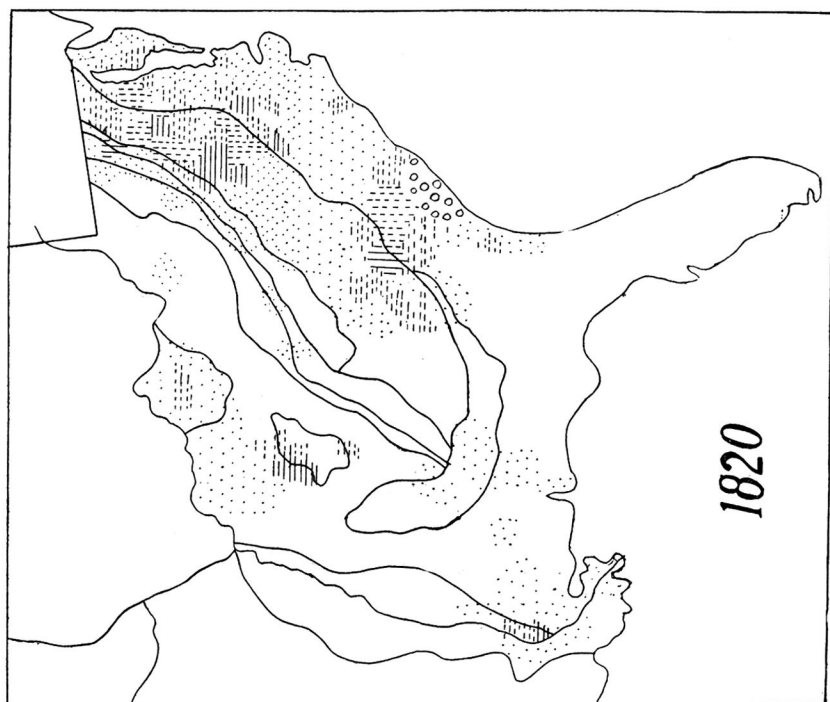
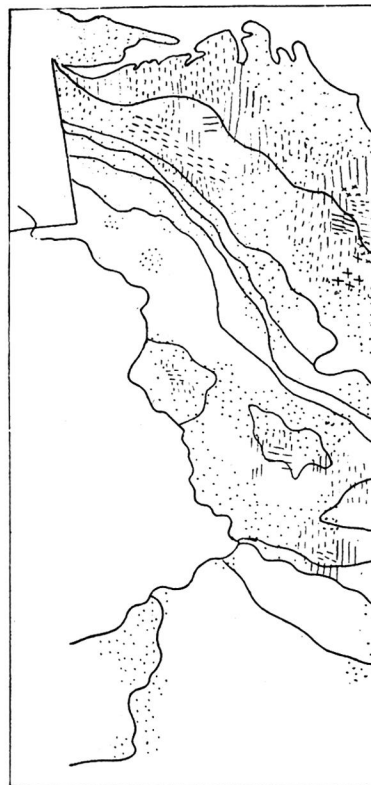
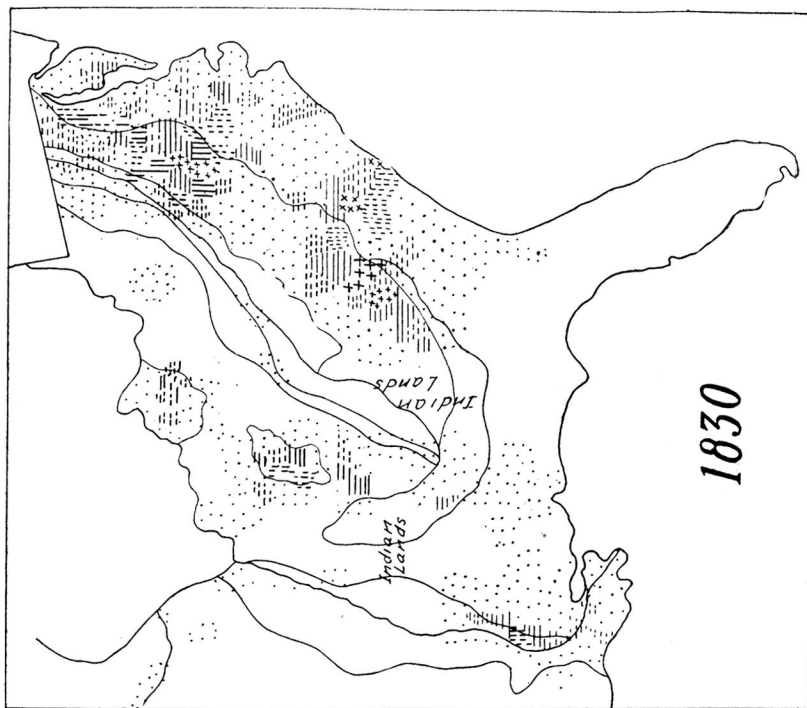
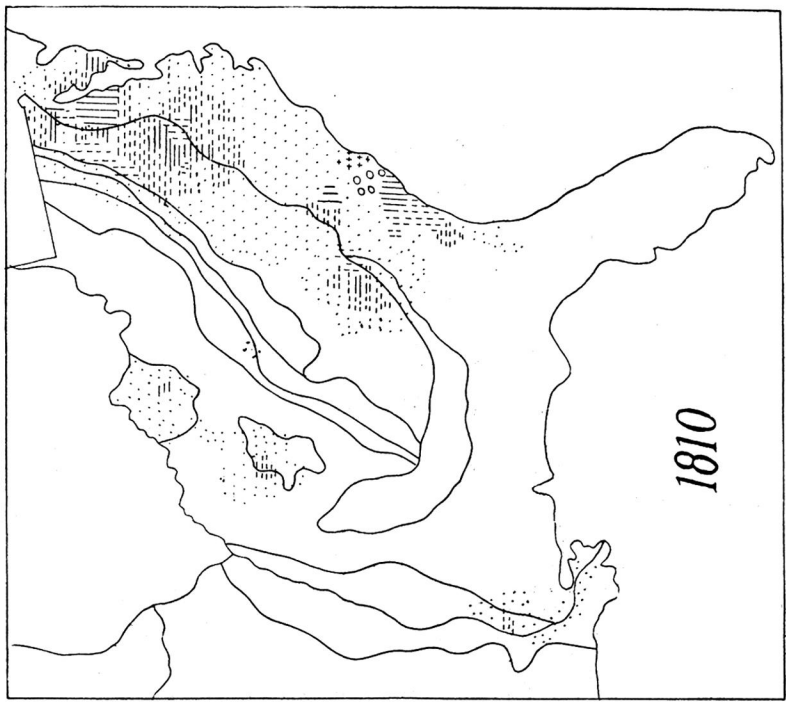
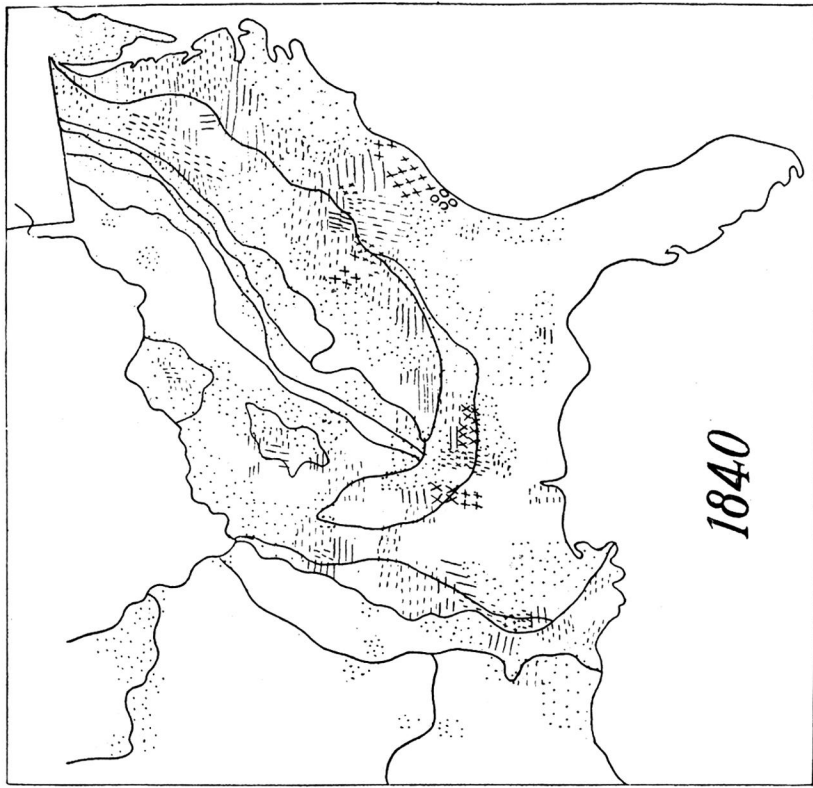
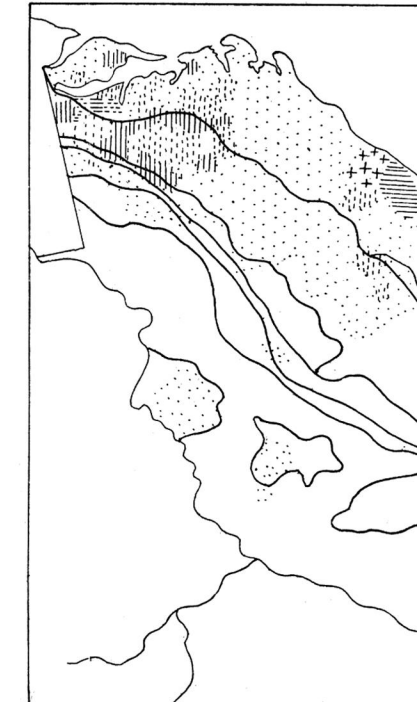
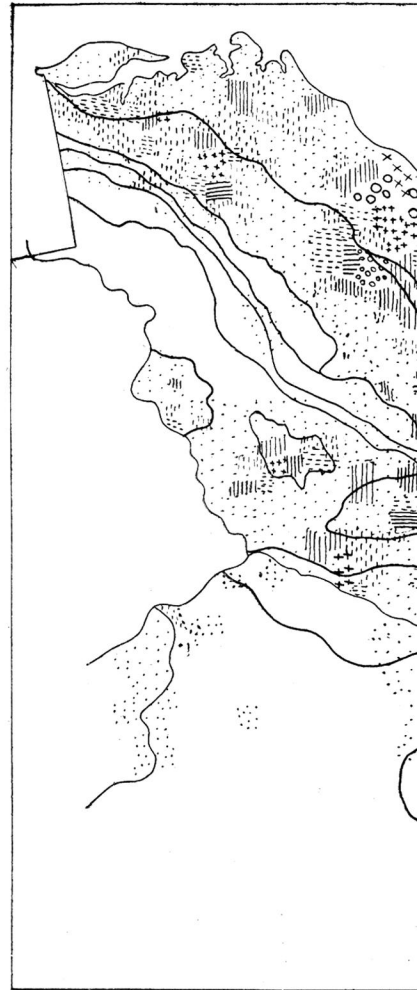


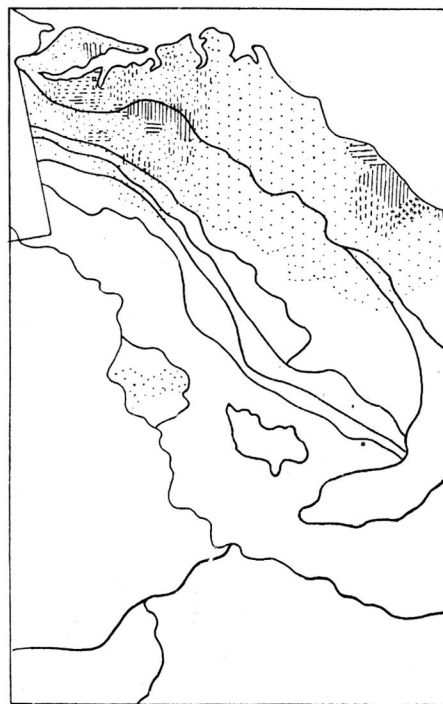
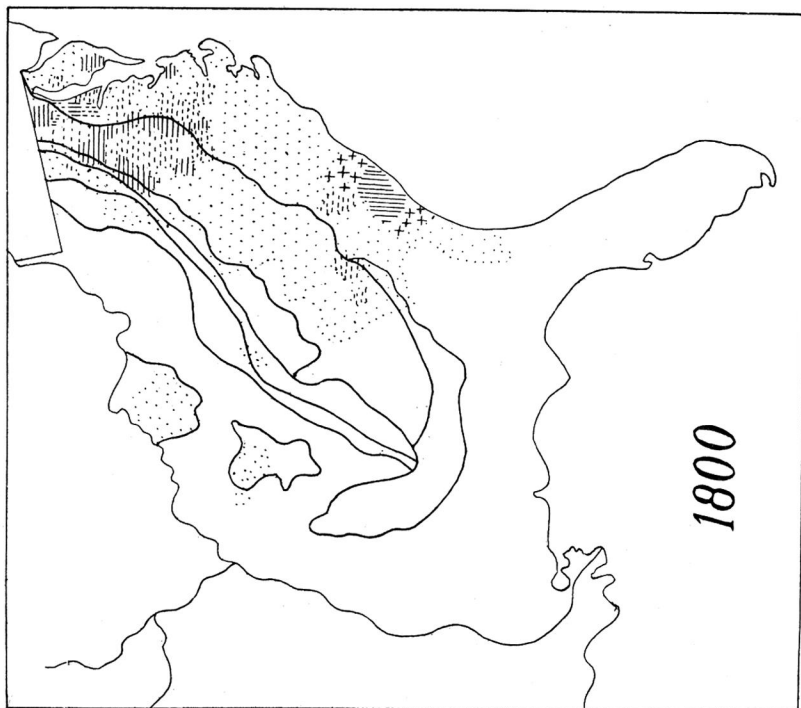
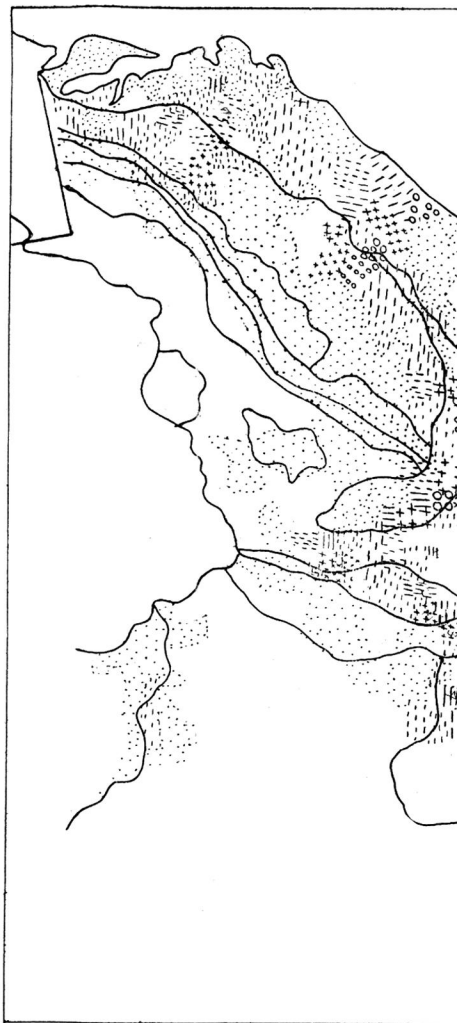
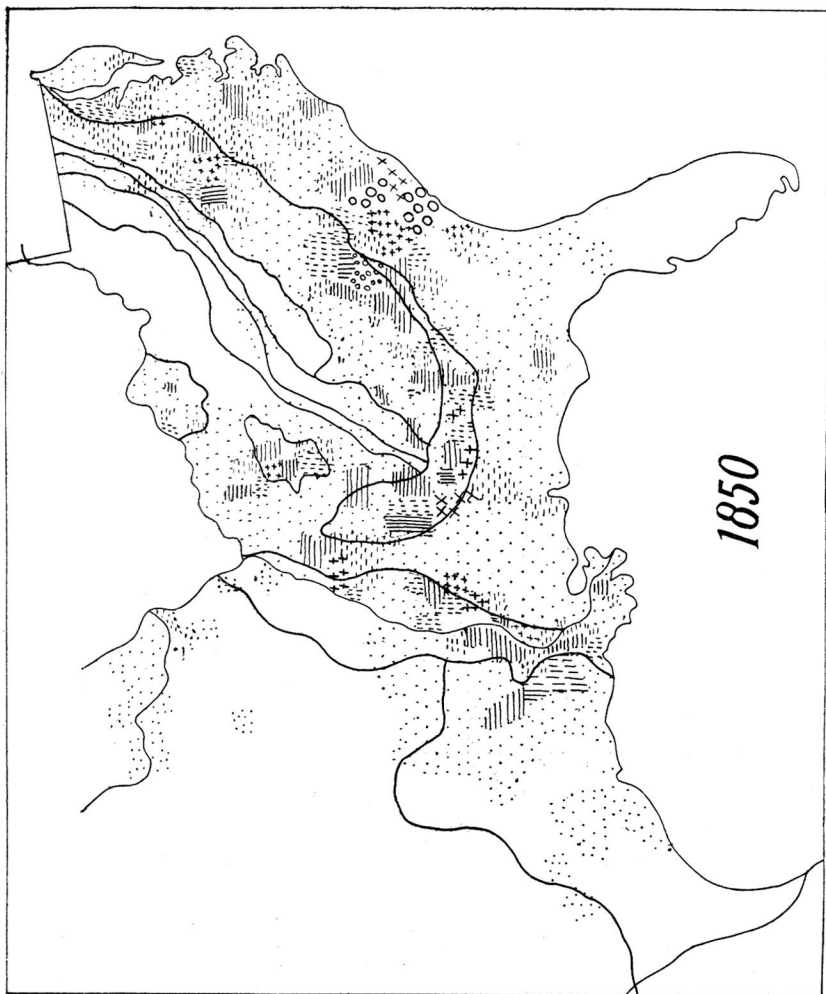
FIG. 26—Cotton production, 1900, and main soil belts of Texas.  
(Soil belts after Loughridge, 10th census, Vol. 5, Part 1.)

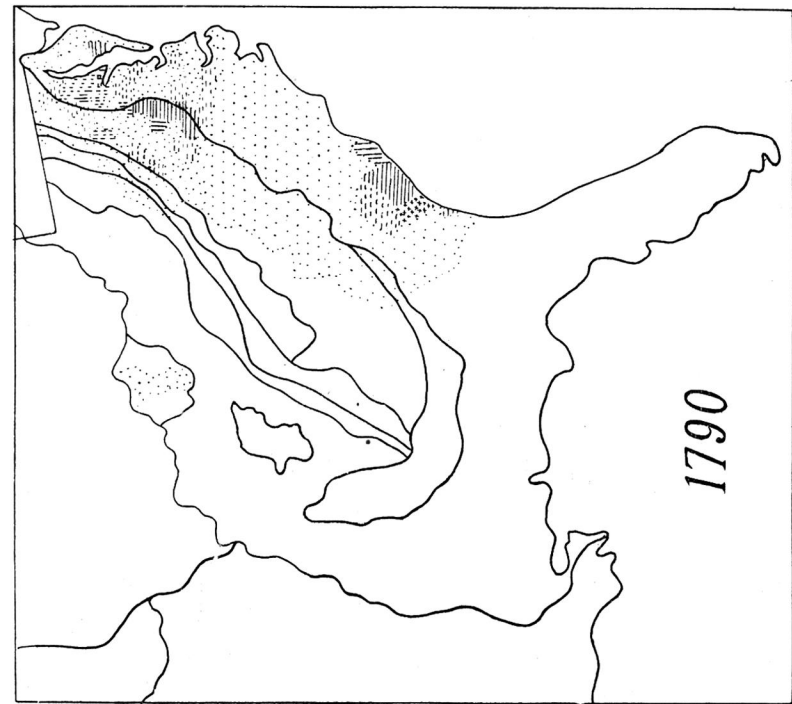
Prairie and adjacent belts which are homologous with the similar belts east of the Mississippi. (Fig. 26.) Had slavery been allowed to expand, the Texas portion of the Western Cotton Belt would undoubtedly have drawn the slaves from the Carolinas and Georgia in the same manner as the Southern Belt reduced the Tobacco South to a slave raising region.

*Résumé:* Although slavery was introduced into all the colonies, it ultimately became important only in those geographic regions that permitted the profitable cultivation of the slave crops, and these crops were limited to a warm climate. On the basis of the main

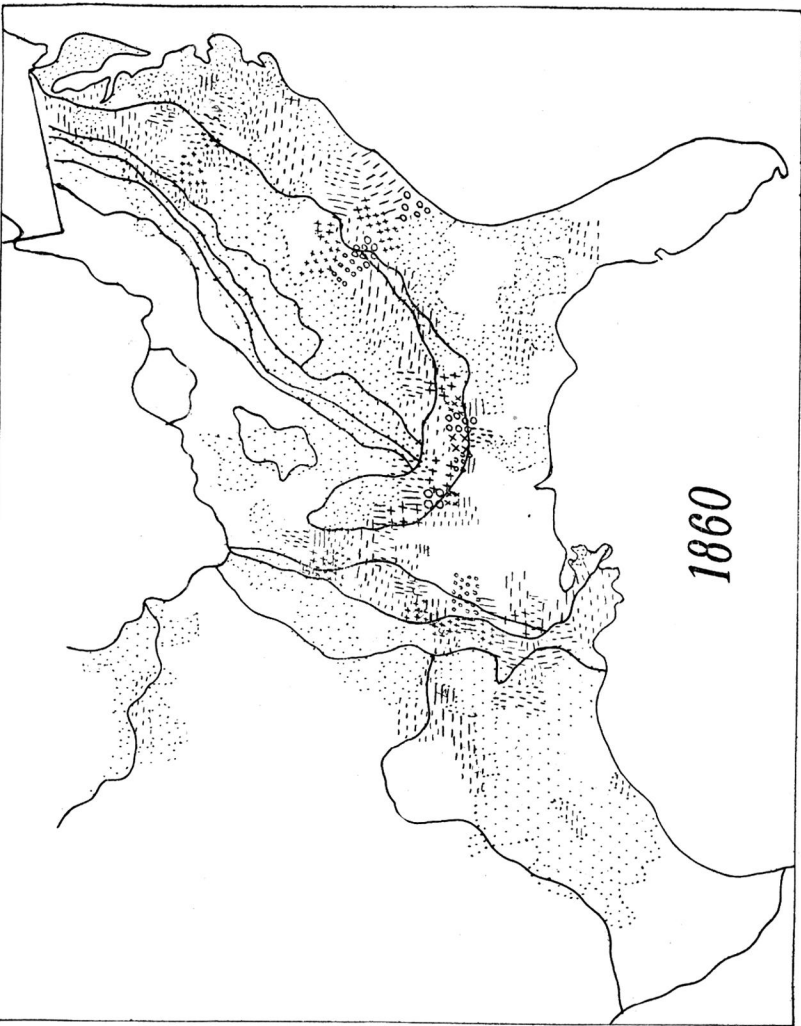








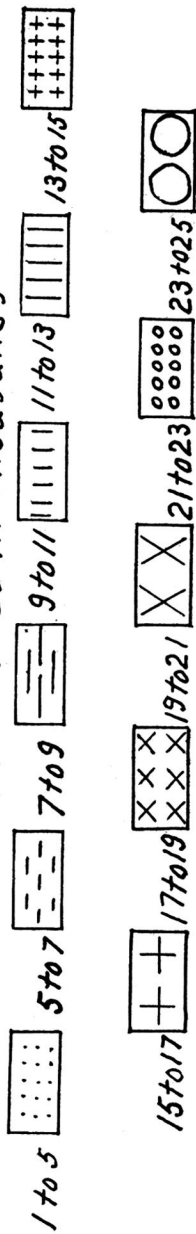
1790



1860

FIG. 27.

*Number of Slaves in Thousands*





slave crop, the South may conveniently be divided into two parts. each having varied topography and soils. The Tobacco South lay north of the isotherm which conditioned the profitable cultivation of cotton. Tobacco here was the main crop with cereals as subsidiary crops. Beginning on the Coastal Plain, the culture of tobacco with its concomitant system of slave labor, expanded first to the Piedmont, later to the Great Valley and Ridge Belt, and finally to western Kentucky and Tennessee, being concentrated especially in the two limestone basins of those states.

In early colonial times, slavery acquired and maintained a strong foothold in the Sea Islands, and the adjacent mainland in South Carolina and Georgia with rice, indigo and sea island cotton as the main crops. The Cotton South began when upland cotton became available, and slavery and upland cotton cultivation expanded together. The first notable expansion was from the Sea Island region to the Piedmont and inner Coastal Plain in South Carolina and Georgia, which became known as the Eastern Cotton Belt. The last expansion was into the Western Cotton Belt which included mainly the Gulf Coastal Plain and the Mississippi Lowland.

---

## SLEEPING SICKNESS IN UGANDA

BY

PETER MAC QUEEN\*

About twenty miles from Kampala lies the hospital Kyetume, where I was told there were 700 patients suffering from sleeping sickness. I decided to stop over night at the hospital. I was most hospitably received by Dr. Claude Marshall, who was then in charge. Sleeping sickness came into Uganda about four years ago. It is caused by the bite of the tsetse fly, which was brought from the Congo by the caravans passing through with ivory to the coast. In four years 250,000 of the most promising natives of Africa have died from the terrible disease. No man who has had an attack of sleeping sickness has ever yet authentically recovered.

The hospital is laid out among beautiful gardens, on a hill overlooking a splendid agricultural section. Most of the patients are treated in a village which the English Government has established.

---

\* By the courtesy of Messrs. L. C. Page & Company, Boston, these extracts on Sleeping Sickness in Uganda are here reproduced from Mr. Mac Queen's excellent book "In Wildest Africa."